



4.38-7
C-1
THE KEYSTONE

Defender

4 No. 1

STATE COUNCIL OF CIVIL DEFENSE, HARRISBURG, PA.

MARCH, 1955

EVACUATION—AS I SEE IT

By PAUL B. HARTENSTEIN, *Exec. Director, Phila. Council of Civil Defense*

IMPROVEMENTS in the development of the atomic bomb and the revelations made public, so far, concerning the effects of hydrogen weapons, have made one fact the axiom of the nuclear age. Standing out above any other consideration for the preservation of human life is the concept of the evacuation of concentrated, urban population centers as soon as warning of attack is given. Reduced to its simplest form, it means that if the people are not in the target area when a bomb falls, they do not become casualties. Immediately three questions emerge to plague civil defense officials the country over, and they are:

- 1) Where do people go?
- 2) How do they get there?
- 3) How do they know when it is time to leave?

(This is perhaps the most important of the three.)

Each question is more than adequate for a complete and voluminous answer, but for purposes of this article, let us explore them in reverse order with brief summarization in terms of today's information.

Our government has been working for some time now with the Canadian Government on the construction of three radar nets across the northern part of the continent. The DEW (distant early warning) line is closest to the Arctic Circle and extends very close to the top of the world. The location was selected because it bisects the shortest route from Russia to this country which can be flown by bomber type aircraft. Presumably a flight would be detected by the electronic eyes of the equipment and a warning flashed back toward civilization. If the flight were missed by the DEW network it is assumed that it would be

picked up subsequently by either or both of the remaining two—the last being almost at the Canadian-United States border. These land installations are supplemented by radar aircraft and picket ships and, ultimately, "Texas" towers will be erected in the Atlantic Ocean to complete the "fence." In each case some advance notice of the presence of an enemy heading toward our country could be given to defense officials, civilian and military, and the length of time before attack could be estimated by the Air Defense Command for any given area. For Pennsylvania, as many as six hours' warning might thus be provided. At this point some outward movement could be started and the longer the warning, the more lives that could be saved. The Air Force, whose responsibility it is to warn cities of impending attack, states that another year will probably pass before these radar installations can be completed. Until they become an operating reality, we continue to be "sitting ducks" for enemy bombs. Duck and cover is the best we can do now, and with super-bombs of one kind or another to conjure with, the results are all too obvious. Evacuation will in time be the answer, but until the warning time is increased, the only constructive thing we can do is to work out the answers to the other questions.

But where the people go and how they get there are no less simple, perhaps, than the problem of advance warning itself. A great exodus of two million Philadelphians, for instance, could be an orderly one, given sufficient time and a workable, complete, and readily understood plan. On the other hand two million desperate, panicky souls, heading for the hills on a "devil-

(Continued on page 2)

THE BIG ISSUES

IN A REPORT issued by the American Municipal Association, civil defense was listed among the most important municipal issues facing Congress in the new session. The newsletter reports:

"Spurred on by increasing realization of the deadly effect of radioactive fall-out from nuclear weapons as well as the lessons learned from recent natural disasters, new concepts and thoughts in CD are taking shape. To come under scrutiny are old policies, established financial formulas, and general re-evaluation of the CD program."

The report pointed up the need for a clear statement of Congressional intent in the light of current dispersal and evacuation problems, and stated that far greater inter-governmental co-operation was needed in the light of present day weapons and requirements. The chief points needing greater consideration according to the Municipal Association newsletter were:

- 1) Increased highway expenditures necessary for evacuation route highway programs;
- 2) Continuing study of shelter programs both within and without the target areas to protect against radioactivity, if not against actual bomb blast;
- 3) The fiscal problems involved in CD preparations and operations.

States the paper:

It is expected that there will be a reshaping of CD's role to fit into natural disaster aid as well as for use in military disasters. An Administration plan will be presented to the Congress to grant a high priority to political subdivisions on billions of dollars of federal surplus property usable for CD purposes."

(December, 1954, issue of Washington Municipal News, official publication of American Municipal Association.)

EVACUATION

(from page 1)

take-the-hindmost" basis, could produce casualties in a quantity substantially similar to the very explosion of a bomb. With two to six hours' warning, an able-bodied person could walk many miles; every step of which would be another step toward safety. Most assuredly everyone will not reach complete safety, but every minute spent in organized egress from the heart of a target, will mean more people alive after an attack.

Our Philadelphia Evacuation Committee has decided that for those in the center of the city, perimeter loading points should be established about two and one-half miles from center city, to which all would walk. At these loading points wheeled transportation should be mobilized and loaded to capacity for subsequent outward movement.

The problems incident to such a staggering migration must be reckoned with, and at least some emergency feeding facilities and first-aid supplies will have to be brought along, because no suburban reception area can be expected to have facilities available where none previously existed. Thus a complete plan of evacuation must provide for some degree of self-sustenance among the evacuees. To be sure, living will be primitive at best, but the best part of that statement is the word LIVING.

What has been reported here is not the complete story of evacuation by any means, because it is yet a young subject with many specifics missing. As we work them out it will take more concrete form. Whatever is finally done, I'm certain that it is the only answer to survival today. If our very best efforts save only some lives, we will have rendered service of the highest order. Civil Defense and evacuation are not of easy solution. The least we can do is our very best.

COMMONWEALTH OF PENNSYLVANIA STATE COUNCIL OF CIVIL DEFENSE

GOVERNOR GEORGE M. LEADER

MR. H. G. ANDREWS, *Vice Chairman, Minority Leader, House of Representatives*

MR. LOUIS G. FELDMAN, *Secretary*

LT. GENERAL FRANK A. WEBER, *The Adjutant General*

MR. CHARLES R. BARBER

MR. CHARLES C. SMITH

MR. M. HARVEY TAYLOR, *Pres. Pro Tem, Senate*

MR. WILLIAM S. LIVENGOOD, JR., *Secretary of Internal Affairs*

MR. JOHN H. DENT, *Minority Leader, Senate*

MR. EMORY F. BACON

MRS. KATHERINE S. CARPENTER

MR. WILLIAM J. MEINEL

* * *

DR. RICHARD GERSTELL, *Director*

Free subscriptions to this publication may be obtained by writing to the State Council of Civil Defense, Capitol Building, Harrisburg, Penna. Address: Miss Alison Raymond, Editor.

THE PRESIDENT ON DEFENSE

ON DECEMBER 15, President Eisenhower described the broad lines of a national defense program which he said the U. S. could support and sustain for a period of 50 years. It is interesting to note that he gave first priority to the continental defense system, and second priority to making sure that areas of importance to the free world did not fall into the hands of the prospective enemy.

The program he outlined involves: 1) Stronger continental defense to blunt enemy attacks with nuclear weapons;

2) Greater retaliatory power to strike against the sources of enemy strength;

3) A smaller active army backed by a reserve system operating at maximum efficiency;

4) A sounder mobilization base in terms of productivity, stockpiling where necessary, and the organization and training of men.

The President stated that atomic age problems forced this country to

concentrate on continental defense and on developing the power to deliver more severe blows than it ever would suffer from surprise aggression. He made it clear at the same time that the U. S. defense program was closely coordinated with that of its Allies in the free world. He stressed that the nation had to get the greatest value out of every defense dollar spent, and this factor, together with strategic considerations, led to the need for smaller active forces and greater reserves.

The NY Times next day pointed out: "What the President outlined was a *change in military doctrine of the U. S.* This is the doctrine of the offensive in time of war; to organize adequate forces to carry the battle to the enemy. The President pointed out that the U. S. had never, since the war of 1812 had to fear attack upon itself until the advent of the long-range bomber and atomic weapons. He laid down the essentials of a doctrine of the offensive-defensive, suggesting *near equality for the defensive.*"

THE PRESIDENT ON THE BUDGET

IN HIS BUDGET Message to Congress on January 17, 1955, President Eisenhower requested \$59,300,000, for FCDA for fiscal 1956, beginning July 1, 1955. This is approximately \$10 million more than the sum that was appropriated by Congress for the current fiscal year.

In his Message the President said, "The concept of Civil Defense adopted last year takes account of the destructive threat of modern weapons and places emphasis on improved warning of impending attack, to allow time for evacuation of potential target cities. Since this policy was announced, the FCDA has developed its plans more fully and individual cities have tested mass evacuation. I cannot stress too much that Civil Defense will succeed or fail in proportion to the willingness of American communities to meet the peril.

The Federal Government is developing cooperative methods with State Governors, Mayors and voluntary citizens' groups, as well as among Federal agencies, in building the Civil Defense organization. In accordance with the Federal Civil Defense Act of 1950, the primary responsibility for Civil Defense rests *with the States and their political sub-divisions.*"

In an introductory statement preceding the request for FCDA funds, the President said:

"In the past year the civil defense

program was tested and strengthened by the first continental civil defense exercise in history, release of the facts on radioactive fall-out, and delegation of certain civil defense responsibilities to other Federal agencies.

Other important actions were an internal reorganization designed to fit the new concepts of civil defense operation, and move of the national headquarters away from critical target areas to Battle Creek, Michigan. In 1956 the Administration will concentrate on:

- 1) intensified public civil defense education and training;
- 2) assistance in the development of evacuation plans;
- 3) installation of more adequate warning devices and procedures; and
- 4) accelerated distribution of technical guidance material, especially in radio-logical defense."

Governor Val Peterson, FCDA Administrator, said:

"The request reflects this Agency's attempt to make its budget as realistic as possible. The amount requested will permit the FCDA to do a good job, and the agency is encouraged by the fact that in each of the past two years the Congress has made increases in its appropriations.

"It is quite likely that after all the effects of fall-out have been carefully studied, FCDA will be required to submit larger budget requests in order to meet the tremendous problems caused by fall-out."



"What WAS it we were supposed to do?"

by Scoop Coates

MEDICAL RESERVE

NO ONE CAN know in advance what he will be doing if a grave emergency develops, but one thing is certain:

Everyone with training and experience in health professions will be needed in a dozen places at once.

Last July, President Eisenhower delegated extensive defense responsibility to the Dept. of Health, Education, and Welfare. In response to this action, the U. S. Public Health Service is:

- 1) Stepping up research in disaster health problems, especially those associated with atomic, biological, and chemical warfare;
- 2) Developing a program to reinforce state and local health departments in time of national emergency;
- 3) Strengthening the Commissioned Reserve of the Public Health Service.

It is this third action we wish to discuss here.

By June 1955, the Service expects to have commissioned 2,000 officers; present plans call for commissioning an additional 3,000 during fiscal 55-56, or a total additional force of 5,000. These include physicians, dentists, sanitary engineers, nurses, and persons in allied health professions who will become part of the Reserve Corps on Inactive Status.

To be eligible for a commission, a person must be an American citizen, at least 21, with a professional degree. Prior experience in the field of public health is not required. Grades correspond to those of the Army, Navy, and

Air Force, and are determined by an applicant's years of education, training, and experience.

No officer of the Emergency Reserve will be recalled for active duty involuntarily except in the event of a national emergency publicly recognized as requiring such action. Moreover, even in an emergency, anyone already performing important health duties would be assigned to active duty in some other area only if the need in that area were so serious as to clearly require his/her services there.

Men and women accepted for Reserve Commissions in the Public Health Service may apply for active duty at any time; they will be given opportunities to go on active duty for limited periods for training purposes, insofar as funds permit; they will also be offered training opportunities which do not require active duty. The aim is for each officer of the Reserve to receive some basic training in emergency health problems, particularly those associated with present-day weapons. Additional intensive, highly specialized training is planned for a limited number of Reserve officers.

Reserve Corps commissions are for periods of five years, renewable at the end of that time. However, officers may resign their commissions at any time.

It is, of course, impossible to keep on active duty in peacetime a health organization the size that would be

needed in a national emergency. A large trained Reserve force, therefore, is needed which could be mobilized quickly if and when a crisis occurred. The newly expanded Inactive Reserve Corps of the U. S. Public Health Service provides an opportunity for qualified people in, or interested in, public health to arrange in advance to serve with the Nation's principle health agency in a national emergency. Anyone interested should write for an application form to Public Health Service, U. S. Dept. of Health, Education and Welfare, Washington 25.

Biggest CD Police Class in Penna. Graduates

THE BIGGEST single Civil Defense police class in Pennsylvania's history was graduated in East Stroudsburg in early January. One hundred and forty eight men started the course; one hundred and forty eight completed it and were awarded their certificates, another remarkable record, and a real tribute to the instructor, Detective Arthur Jones. All the graduates had spent three hours a night, once a week for eight weeks in order to master the fundamentals necessary for their duty.

The chief duty of an Auxiliary policeman in Monroe County will be to guard against sabotage on the vital bridge which form the link between Pennsylvania and New Jersey in the event of war, and to protect the supplies of food, clothing, medical equipment and drugs which will be moved to and from the county in emergencies; they will also be needed badly in handling traffic flows, guiding and directing refugee movements in the event of bombings.

The 148 new auxiliary policemen were recruited from throughout the county; a solid block of county governmental, civic and CD officials were present to witness the ceremonies, and speak to the class, all of whose members were fingerprinted as a part of the evening's graduation.

Executive Director Paul Crawn, who took part in the ceremonies, said that application has already been made for a women's class in auxiliary police work, and that advanced courses in CD police work will be set up in the future.

Captain Emmett Donovan, Captain in the State Police, another speaker of the evening, congratulated the group, and stated that through January no less than sixty similar classes were in progress throughout the Commonwealth, adding steadily to the number of men throughout the State who would be ready and able to supplement the regular police force in time of trouble.

JONES AND LAUGHLIN MOVES AHEAD

By W. R. RAMSEY, *Industrial Defense Coordinator*



Fire instruction is a regular procedure—in some cases weekly.

(Recently a series of articles on industrial civil defense, continuity of management, plant protection planning, and related subjects have appeared in the Defender. One of the best prepared companies in Pennsylvania is Jones and Laughlin Steel Corp. We are proud to carry this report of their approach to civil defense. Editor.)

EARLY IN 1951 the management of Jones and Laughlin Steel Corp. decided that it was important to consider the problems involved in War Emergency and Civil Defense in order that employees, plants, and equipment should all be protected to the fullest possible extent in the event of a war disaster. It was realized that large scale destruction of industrial population and plants has been established as an integral part of modern war.

The Vice President of Operations at that time decided that the first step was to establish responsibility for the program. In the ensuing months, each plant manager designated one individual as the Defense Coordinator for that plant, thus an organization was set up. All Divisions in the Corporation were gradually brought into the program including steel plants, ore mines, limestone quarries, coal mines, wire plant, tube plant, warehouses, container plants, and other major units including plant railroads.

In May 1951, a Civil Defense Co-

ordinator was appointed for the Corporation on a full time basis. It is his function to coordinate these emergency activities in the various divisions, and to keep in regular contact with the federal, state and local CD authorities.

Committees have been organized in all units of the Corporation. A sample of the organization as set up in the steel plants is as follows:

- Defense Coordinator:
- Superintendent of Maintenance
- Security and Police:
- Superintendent of Plant Protection
- Fire Protection:
- Superintendent of Fire Prevention
- Safety, First Aid Food Service:
- Supervisor of Safety
- Medical:
- Plant Physician
- Communications:
- Works Accountant
- Engineering:
- Plant Engineer
- Maintenance, Rescue, Emergency Repair:
- All Master Mechanics in the various departments.

You will note that those Civil Defense problems which closely relate to day to day activities of the Committeemen were assigned to top supervision in that field. In smaller units some of these activities were combined under one head.

Training starts with this committee.

The group meets regularly each month and discusses the various problems. Current literature of importance is discussed, including noteworthy articles from the press. Films on first aid, fire protection techniques, Civil Defense, and any others important to the program are shown as they become available. Minutes of the meetings are maintained and they form a ready reference of detailed plans if an emergency should arise. The Corporation Civil Defense Manual is a part of this educational program.

In addition to the regular training of the organization as outlined, there is a long-range training program covering the various phases of Civil Defense, such as first aid, fire protection, auxiliary police, rescue, messenger service. The details are as follows:

First Aid Training

Authoritative statistics indicate that an atomic or hydrogen disaster, even WITH warning, would probably result in large numbers of injuries within a community, and therefore within a plant. The management decided that a minimum of 10% of our personnel in the various divisions should receive first aid training. The complete Red Cross or Bureau of Mines course was given at several units. In steel plants where continuous production is a major factor, we have concentrated on phases of first aid such as artificial respiration, control of bleeding, transportation of the injured, burns, bandaging and splinting. In some steel mill departments *all* of the employees have been trained. In other departments at least 35% have received this instruction. Our Corporation and Plant Safety Department personnel believe that this type of program is beneficial to the overall accident prevention plan, as well as preparation for a disaster.

Fire Prevention

There are two very important phases of fire prevention and protection. Fire equipment must be maintained in first class condition for instant use, and sufficient employees must be trained in the use of that equipment so that all departments are covered on all turns. We have stressed the importance of regular inspection of equipment to make certain that it will function properly when needed. Our fire protection training in Civil Defense is centered around the nucleus of departmental fire brigades, although many

(Continued on page 5)

JONES AND LAUGHLIN

(from page 4)

additional employees have also received training in the use of the equipment. Brigades vary in size depending on the equipment located in the area involved. These fire crews are trained on a monthly basis but in some cases weekly, according to the potential fire hazard. Instructions by experienced fire personnel is the regular procedure in large divisions, but in smaller plants the local community fire chief has assisted in expert demonstrations. In all cases, the employees discuss and practice the use of the equipment in these training sessions. Recent natural fire disaster experienced by some corporations has indicated the importance of a thorough fire prevention program which can fit in perfectly with the Civil Defense program.

Housekeeping Standards

A good housekeeping standards program, wherein monthly inspections are made by supervision and comparative departmental ratings are posted on a monthly basis has helped our current safety position and has decreased our potential fire hazard. Housekeeping awards are given to the department with the best rating for the month, and another award is granted to the department with the best average rating for the year.

Rescue, Auxiliary Police, Messengers

Personnel has been selected in every department to carry on these functions in an emergency. They have been informed of their duties by supervision trained in these requirements. In our steel plants we are fortunate in having trained burners, welders, electricians, demolition groups, etc., who receive training as a part of their normal duties. These skilled employees are a part of the rescue and emergency repair group. Many of them have been given special training in the use of gas masks; more such training is being considered. Some of our personnel have attended both Federal and State Rescue Schools.

Shelters and Warning Systems

Shelters have been selected in all units in the Corporation, and directional signs posted. Employees have been shown the route, and have had "dry-runs." Warning signals are also established and, as part of the training, are sounded on state or federal alerts as well as special plant practices. Not only the Plant Defense Committee, but also the various plant managements are informed on the Yellow. Results of the practices are distributed to all involved, and considerable improvement has been noted after several practices have been held.

Information to Employees

It is important to inform employees what CD activities are in progress and if possible to include stories of specific employees in such literature. A series of articles was written in our "Men and Steel" publication, outlining specific phases of the program, and stressing pictures of the employees in action.

In the early stages of the program, the film "Pattern for Survival" was shown to about 40,000 J&L employees, or nearly 100%. Other films on first aid, communications, and fire prevention have been shown to groups specifically involved.

Future Plans

Although, as has been indicated, some phases of this program are on a continuous long-range basis, there are some items which are currently under consideration for Industrial Defense planning. To mention a few, Continuity of Management, Plans for Emergency, Headquarters for General Office Group, Inter Company and Inter Plant Assistance, are currently receiving attention. For those who may be interested in an overall guide, you can obtain a copy of the "Industrial Defense Planning Manual — Iron and Steel" by writing to: American Iron and Steel Institute, 350 Fifth Ave., New York 1, N. Y., George S. Rose, Secretary, Price 50 cents.

"CROSS TALK" ON THE AIRWAYS

WHEN a group of radio amateurs tries to use several transmitters and receivers on closely spaced frequencies at one site, the "cross talk" that occurs has been a major problem, according to Brig. General Stuart P. Wright, commander of the Air Development Center at Rome, N. Y. "The eaves-dropping badly garbles vital communications," he said.

Recently a group of scientists at the Polytechnic Institute at Brooklyn have developed a device designed to keep the air waves clear for vital emergency

communications. The instrument is an ultra high frequency multi-coupler, permitting a single antenna to serve a group of transmitters and receivers operating simultaneously.

The device is now being tested and further developed at the Rome Air Base.

"It is imperative that we find a means of keeping amateur radio enthusiasts "cross-talk" from interfering with communications between command stations and planes in the air," stated an Air Force official.

NATIONAL HIGHWAY PROGRAM

IN REPORTING to the President on the proposed ten-year national highway program, General Lucius Clay, Chairman of the President's Advisory Committee on highways touched on its civil defense aspects in these words:

"From the standpoint of civil defense, the capacity of the interstate highways to transport urban populations in an emergency is of utmost importance. Large-scale evacuation of cities would be needed in the event of A-bomb or H-bomb attack. The Federal Civil Defense Administrator has said the withdrawal task is the biggest problem ever faced in the world. It has been determined as a matter of Federal policy that at least 70 million people would have to be evacuated from target areas in case of threatened or actual enemy attack.

"No urban area in the United States today has highway facilities equal to this task. The rapid movement of the complete 40,000 mile interstate system, including the necessary urban connections thereto, is therefore vital as a civil defense measure.

"Responsibility for selecting the highway facilities needed for this defensive action has been delegated by Executive Order to the Bureau of Public Roads."

BITS AND PIECES

The staff college at Olney, Md., was due to have moved to Battle Creek by March 8th. The Rescue School will continue to operate at Olney at least to the termination of its lease which runs until June 30th.

* * *

Newark, N. J., plans to build a Rescue Training Center patterned on that at Olney.

* * *

Six rescue trucks have been delivered to the Turnpike Commission in Penna. with permission to use them in peacetime emergencies.

* * *

It is planned to erect a rescue and fire training building at York, Pa.

* * *

The PTA of Bloomsburg, Penna., recommends a "father-son rescue team."

* * *

St. Anselm's College in Manchester, N. H., has been offering a course in Civil Defense since 1953. It is believed that this is the first college course on the subject in the United States for which a degree credit is given.

GUIDED MISSILES

"I KNOW THAT the Soviets have medium range missiles, capable of carrying an atomic warhead, which could reach American cities from launching platforms at sea. Such platforms, designed to be submarine-towed, were developed in Germany and taken over by the Russians at the end of World War II.

"I know, also, that the Russians have produced large quantities of bombardment missiles which, launched from Soviet bases, could strike anywhere in Europe.

"I do not believe that the Soviet Union has yet perfected an intercontinental guided missile which can be launched at American targets from Russia, but I have information that the Reds are making good progress on it."

Who is the authority talking? Dr. Walter Dornberger, who is known as the "father of the guided missile." He worked on developing rockets for the German Army since 1930, and was Commanding General of the Nazis V-2 center during World War II. Although now a specialist in guided missiles with Bell Aircraft Corp. in Buffalo, New York, he keeps in close touch with German scientists, some of whom have worked on Russian missiles; in addition he has, as he says, "access to documents concerning Russian missile progress." Dr. Dornberger wrote an article for *Colliers*, Jan. 7, 1955, from which we take the following excerpts:

"I would sum up Russian progress in this manner: three years ago I would have said the Soviets were well ahead of the U. S. Three years from now I believe we will be ahead of them. Today, I believe they are about on a par in missile development; . . . I believe both have some very deadly missiles."

It is possible "for a submarine to move undetected into a firing position several hundred miles out in the ocean; in World War II we Germans developed the submersible launching platform for just such use. This device was a large container, about 100 feet long, resembling a missile. Inside it was to be a V-2 rocket, propellant tanks to provide the rocket's power, a gyro-stabilized firing platform which would keep the missile steady regardless of the swell of the sea, and a ballast tank.

"We estimated that one submarine could tow three such containers, weighing about 500 tons, for 30 days, at an average speed of 12 knots. The containers were to be towed in horizontal position, either on the surface or below it. Upon reaching the selected launching point, the ballast tank would be flooded, tilting the container to the

vertical position. A missile crew from the submarine would open a hatch in the top, fuel the missile and ready it for firing. The actual launching would be triggered from the sub, standing off a safe distance. I have every reason to believe the Soviet Union has such a weapon today. They picked up the development of the V-2 where of the German Army Experimental Station left off. In 1945, the V-2 had a range of 200 miles and was accurate enough to hit a large city. Now, an informant of mine who spent several years working on Russian missile projects, says 'they have increased the range to at least 300 miles, and claim accuracy within 1500 feet.' The V-2 can, of course, carry an atomic payload."

Dr. Dornberger, in discussing the possibility of submarine launched missiles went on to say, "We know the Russian Navy has more than 300 submarines, obviously a great many more than are needed for defense of the home waters. I believe their emphasis on underwater vessels indicates a plan to use submarines offensively, in American waters, quite possibly to tow vessels for missile launchers."

In discussing intercontinental rockets, the German expert said, "The Russians are working on what they call Project 333. That means a three stage rocket with 3,000 mile range, and a three-ton payload. And they are making progress."

It is well known that during the occupation, the USSR stripped the advanced German electronics industry and moved hundreds of German specialists back of the Iron Curtain. From this start, they have built up a strong electronics industry of their own, east of the Ural Mountains; some of the manufacturing plants are deep in eastern Russia . . . although I conclude from the evidence I have seen that Russia does not yet have a perfected intercontinental missile, but they have apparently made a good deal of progress, and we must consider the probability that they will have such a weapon within a very few years."

Dr. Dornberger pointed out that the speed of development would be greatly increased if a human brain could be used to replace complicated electronics guiding systems, and suggested that a manned missile could quite conceivably be used as a suicide weapon as were the Japanese Kamikazes, to great effect.

He also suggested the very real possibility that so-called mother planes could carry missiles close to the target, enabling the humans aboard to stay

out of anti-aircraft defenses, but direct from the plane a radar beam which the missile's electronic brain could follow.

"I feel the American people must get a clear idea of the technological status of their potential enemy so they will be neither unduly alarmed at exaggerated reports, nor lulled into a false sense of security by those who underestimate the Soviets. It is important, too, that the taxpayers who contribute the millions we are spending on missile programs understand the urgency behind such expenditures."

Home Warning Possible

"FROM MY HOUSE I never hear the sirens."

"In the last test I never would have known anything was happening."

Comments such as these are frequently heard.

All this may soon be changed for the General Electric Company is experimenting with a small device that could be plugged into power outlets in homes to give the alarm in an emergency, FCDA has announced.

The device is hardly larger than an alarm clock; it is similar to the low-voltage mechanism which cities and industries use to turn off and on hot water heaters, streetlights and the like.

The principle is that of imposing a voltage wave of a different frequency on 60-cycle powerlines. A special receiver reacts only to the imposed voltage which, in this case, would operate the warning devices.

G. E. reports that the new receiver is expected to sell for between \$5 and \$10. It would remain plugged in a socket, and would sound in the home only if the transmitter for generating the carrier wave or warning signal were turned on at a central point. The receiver is technically capable of continuing to respond to warning signals even if electricity is cut off at the power station switches.

At the present time, General Electric together with International Business Machine Corp. is currently studying power systems in Albany and Buffalo, N. Y. and Bridgeport, Conn. to determine cost of line adjustments required to use the carrier currents for warning purposes.

The Junior and Senior Women's Clubs of Oakmont, Penna., provide observers for the Oakmont GOC Post for an entire day each week. The forty members of these two clubs enabled the Post Supervisor to bring his post to almost 24-hour operation in less than 60 days.

Assigning responsibility to clubs or groups for individual days often helps lighten the Supervisor's load.

THE HYDROGEN BOMB AND FIRE

(This material is taken from an address made in October to the International Ass'n of Fire Chiefs, by Kyle P. Laughlin, FCDA Fire Research Specialist. Larger nuclear bombs change some of the earlier fire civil defense principles; the size of fire ball of an H-bomb is such that it can be expected to touch or be very close to the earth. Not only does this cause new radiological hazards, but also different results to underground installations, such as water mains.)

"TODAY I WANT to discuss with you the impact of the new weapons on our basic planning assumptions for Fire Defense. You know that the atomic bombs dropped over Japan have been rated the equivalent of 20,000 tons of TNT. These are called X bombs; larger bombs are merely multiples of this figure. In dealing with hydrogen bombs, we are dealing with forces fifty and more times the destructive force of those dropped at Hiroshima. President Eisenhower has stated officially even atomic bombs are now 25 times larger than those exploded over Japan.

Regardless of the size of the bomb, there still are zones of destruction, varying from complete to minor. In the completely devastated area, it would be difficult for fires of any magnitude to become established, as most of them would be buried and smothered by tons of non-combustible masonry from collapsed buildings. It is in the belt around the area of total destruction that fires will burn freely and can be fought.

In other words, the "C" and "D" areas will be the fire zones. There there would be sufficient heat from the flash to start fires in highly combustible materials both outside and inside buildings. We call these materials "kindling points." The probability is that thousands of initial fires would break out in the fire zone at the time of exposure, not to mention the great number of additional fires which would be started by the overturning of heating devices, breaking of gas lines, etc.

Although scientists are still at work evaluating existing data, it is fair to assume at this time that the fire situation from a hydrogen bomb will be an enlarged picture of that from a nominal (or X) atomic bomb, and the area of critical exposure due to thermal radiation will fall (under average atmospheric conditions) within the extreme limits of blast areas.

The development of larger weapons and experience with hydrogen bomb fall-out has necessitated a re-examination of the radiological defense problem. . . .

"Dr. John C. Bugher, Director of the Division of Biology and Medicine of the A. E. C. has said,

"When the detonation is such that the fireball rests upon the ground, great

amounts of earth are drawn up into the rapidly rising fireball, resulting in coarse, highly radioactive particles which tend to fall rapidly while being carried along by the wind. In such cases there is an area of highly radioactive fall-out in which the maximum intensity may be lethal following an exposure of only a few hours . . . the dimensions and shape of the fall-out pattern are determined by the whole complex of wind patterns, although characteristically there is a narrow fan in which the area of highest contamination has a somewhat elliptical shape." (Note from Mr. Laughlin: this elliptical pattern to which Dr. Bugher refers, could extend many miles down wind, far beyond the city limit of even the largest cities).

"We must," Dr. Bugher continues, "face the tremendous medical and social problems involved in atomic warfare. Not only must we be prepared for blast and thermal casualties on a scale never before conceived, but we must recognize that these weapons may be used also for their radiological effects, in order to deny the continued use of large areas for considerable lengths of time, even beyond the zones of immediate damage." . . .

If we were attacked, we do not know what size or kind of bomb would be used against us nor where it would burst. If we are to make plans in the light of new and more dangerous weapons that are now being developed, those plans must be dynamic and flexible. For the purpose of fire defense, such planning must be based on a study of our probable target areas, and a re-evaluation of our operational plans in light of the expanding threat.

We must assume that an attacking enemy would use weapons of varying sizes for different purposes. It is inconceivable that an enemy would plan to drop a hydrogen bomb on a small community. But we have many metro-

politan areas that would be inviting targets for a hydrogen bomb. In an effort to destroy vital facilities, more than one bomb might be used, particularly on cities that are widely spread out.

In our planning assumptions for the fiscal year of 1955, we have suggested that for estimating purposes $\frac{1}{2}$ to all of the area of any target city will be included in the A, B, C, zones of damage. . . .

While none of the effects of H bombs are new, they are intensified to an enormous degree and some effects, in particular radioactive fall-out, now become major threats. What impact does all this have on fire defense?

It seems to me that the two chief elements to consider are :

a) The increased size of areas of damage;

b) The radiation contamination problem.

If most of a city area were involved in A, B, and C zones, fire fighting operation would be feasible in the fringe areas only, which would, in the main, be sparsely built up. Suburban towns could be involved, where building density in a few blocks might be rather high, but in the main, the chance of many individual fires coalescing into mass fires, such as fire storms, seems to be reduced.

Fire fighting operations under such conditions would involve a choice of which fires to fight and which to leave burning. This would be heart-breakingly difficult and would depend on many considerations :

availability of equipment and manpower ;
relative importance of the building on fire ;

accessibility of the structures involved ;
chance of preventing fire spread ;
availability of water supplies ;
radiation hazard.

Assuming that within the next year or two there may be an increase in warning time, we must give additional thought to the movement and redeployment of the fire forces from the heart of a city to a less vulnerable area. Often this would mean crossing municipal lines. The H bomb will be no respecter of such boundaries. A unified command over large areas seems essential if the maximum amount of equipment is to be saved and the best use is to be made of all forces. Such command would control also the immediate movement of fire support forces over large distances and would direct the cross-wind movement of equipment and manpower away from and around areas where

(Continued on page 8)

Relocation of Centers

SO MUCH of the State's training has been taking place in the various counties, rather than at the Ogontz Center, that it was decided to move the training activities back to Harrisburg, where Colonel Edwin Feather will continue as Training Director. Rescue instruction will be given at sites built at Welfare institutions and at the State Fire School.

Eastern Area headquarters was, at the same time, moved further from Philadelphia and relocated in Quakertown, Penna.

H BOMB AND FIRE

(from page 7)

contamination is building up from radioactive fall-out.

Fall-out may prevent fire fighting entirely in certain areas. Fire Service Radiation monitoring will play an essential part in effective fire fighting activity. When the revised version of International Fire Chiefs' document "Radiation Monitoring Fundamentals for the Fire Services" is issued, it should be obtained and studied by all who are concerned with this problem and it should be the basis for training programs in the Fire Services.

The cratering effect of a low burst bomb will break and destroy underground installations and dependence on any primary water supplies would be reduced to a minimum. Under such circumstances, reliance would have to be made on emergency sources of supply for any firefighting. I am sure you realize how important it will be to chart all available sources of water there may be within and beyond the city limits, and to make practical plans for the quick utilization of that water. It will also be of great importance that every drop of water be made to count.

With fires starting up over great areas, it is obvious that much of the firefighting will have to be done by householders if their homes are to be saved. The education of millions of householders in the use of tools for basic firefighting remains of paramount importance.

No single prescription will work against all forms of enemy attack. We must be versatile, imaginative, and seek constantly to keep abreast of the new weapons effects. . . .

In closing, I wish to say that the threat of hydrogen bomb attack calls for the most serious thinking of which we are capable. Revolutionary methods of attack call for a revolution in defensive tactics. We must think bigger and bring to bear on the problem all the skill, the practical know-how and the imagination which exists in the Fire Services in order to do all that is humanly possible in an emergency to save lives and to minimize the loss."

LAUGH FOR THE DAY

A RELEASE from the Frozen Food Locker Association to the effect that such lockers are ideal hiding places in the event of an atomic explosion brought forth the following ditty from Dr. A. B. Welsh, Medical Officer from the State Council of Civil Defense:

"Now I lay me down to sleep
If I should die, at least I'll keep."

KEYSTONE DEFENDER
OCONTZ CENTER
MONTGOMERY COUNTY, PA.

RETURN POSTAGE GUARANTEED

Librarian
Periodical Sect.
Penna. Dept. of Pub. Instr.
Library, Education Bldg.
Harrisburg, Pa. 21

SEC. 34.66 P. L. & R.
U. S. POSTAGE
PAID
PHILADELPHIA, PA.
PERMIT No. 1705

Bethlehem Steel the First

FAR OUT AT SEA, about 100 miles off shore, a series of floating stations are to be erected as part of the increased defenses of this nation. Late in December the Navy awarded a contract to the Bethlehem Steel Co. to erect the first of the series of these towers to be built along the Atlantic coast.

This station which, because it looks like an oil well structure, will be known as Texas Tower, is to be located off the New England coast. Its cost is estimated to be between 5 and 10 million dollars.

The towers are to be built for the Air Force by the Navy's Bureau of Yards and Docks. They will serve as weather data collection and reporting stations as well as keeping radar watch for possible attacking bombers.

Because of the importance of wind currents and atmospheric conditions in determining the drift of radioactive clouds, the increased weather-watching facilities became a major factor in defense preparedness.

Meteorological data must be used in predicting the area where fall-out is likely. The United States Weather Bureau has already started to inform its personnel as to procedures for predicting fall-out from nuclear explosions.

The weather reports from the Texas Towers will be incorporated with data from many other sources to increase the accuracy of fall-out information which would be so badly needed by civil defense authorities following a nuclear attack.

In addition, the most modern electronic devices will be in constant watch for unidentified planes approaching over the ocean spaces.

Straws in the Wind

A TEN-MILLION DOLLAR luxury hotel soon to be built in Los Angeles will include an air-conditioned bomb shelter 200 feet deep.

* * *

Sears Roebuck and Company has decided to sell civil defense equipment for both general and specialized uses. First in the series of CD items which this national chain will handle is a radiological defense survey meter (FCDA item V-710) for use by industrial facilities protection units and CD monitoring teams.

Joint promotion between local CD organizations and Sears stores is urged wherever possible. It might be suggested locally that stores arrange for window and interior displays, or that store managers be urged to include drop-in civil defense messages in their advertising of CD equipment.

* * *

Rohm and Haas Chemical Plant in Bucks County has installed a \$25,000 underground shelter for the protection of their employees in case of enemy attack.

* * *

Millions of cubic feet of household gas will soon be stored in great caves beneath the plains of northern Germany in an attempt to guard the fuel from the H-bomb. Long distance pipe-lines from the Ruhr industrial area 100 miles away have begun to transmit huge quantities of the gas to the caves.

* * *

The Liberty ships of WW II are re-enlisting for atomic sentry duty. The first of four was commissioned on March 1st to patrol the Atlantic again